

IN THE CLAIMS:

Please amend the claims as indicated below

1 (Original) A method for use in finding near-neighbors in a set of objects
5 comprising the steps of:

identifying subspace pattern similarities that the objects in the set exhibit
in multi-dimensional spaces; and

defining subspace correlations between two or more of the objects in the
set based on the identified subspace pattern similarities for use in identifying near-
10 neighbor objects.

2 (Original) The method of claim 1, wherein the identifying step further
comprises the step of creating a pattern distance index

15 3 (Original) The method of claim 1, wherein the multi-dimensional spaces
comprise arbitrary spaces.

4 (Original) The method of claim 2, wherein the creating step further
comprises the step of determining a subspace dimensionality of one or more patterns in
20 the pattern distance index

5 (Original) The method of claim 4, wherein the subspace dimensionality is
an indicator of a degree of similarity between the objects

25 6 (Original) The method of claim 1, wherein data relating to the objects is
static

7 (Original) The method of claim 1, wherein data relating to the objects
comprises dynamic data insertions
30

8. (Original) The method of claim 1, wherein data relating to the objects comprises gene expression data.

9 (Original) The method of claim 1, wherein data relating to the objects
5 comprises synthetic data.

10. (Original) The method of claim 1, wherein identifying the subspace
pattern similarities comprises a comparison of any subset of dimensions in the multi-
dimensional spaces.
10

11. (Original) The method of claim 1, wherein identifying the subspace
pattern similarities comprises an ordering of dimensions in the multi-dimensional spaces

12. (Original) The method of claim 1, wherein each object is represented by a
15 sequence of pairs, each pair indicating a dimension and an object value in that dimension.

13 (Original) The method of claim 12, wherein a first pair in the sequence of
pairs comprises a base of comparison for one or more remaining pairs in the sequence of
pairs
20

14. (Original) The method of claim 12, wherein the sequence of pairs is
represented sequentially in a tree structure comprising one or more edges and one or
more nodes.

25 15. (Original) The method of claim 2, wherein creating the pattern distance
index comprises use of pattern-distance links.

16. (Original) The method of claim 1, wherein the process is optimized by
maintaining a set of embedded ranges.
30

17 (Original) The method of claim 1, wherein the subspace correlations
comprise a distance between two or more of the objects in the set.

18 (Original) A method of performing a near-neighbor search of one or more
5 query objects against a set of objects comprising the steps of:

creating a pattern distance index to identify subspace pattern similarities
that the objects in the set exhibit in multi-dimensional spaces;

defining subspace correlations between two or more of the objects in the
set based on the identified subspace pattern similarities; and

10 using the subspace correlations to identify near-neighbor objects among
the query objects and the objects in the set.

19 (Original) An apparatus for use in finding near-neighbors in a set of
objects, the apparatus comprising:

15 a memory; and

at least one processor, coupled to the memory, operative to:

identify subspace pattern similarities that the objects in the set exhibit in
multi-dimensional spaces; and

define subspace correlations between two or more of the objects in the set
20 based on the identified subspace pattern similarities for use in identifying near-neighbor
objects

20 (Currently Amended) An article of manufacture for finding near-
neighbors in a set of objects, comprising a computer ~~machine~~ readable medium
25 containing one or more computer programs which when executed implement the steps of:

identifying subspace pattern similarities that the objects in the set exhibit
in multi-dimensional spaces; and

defining subspace correlations between two or more of the objects in the
set based on the identified subspace pattern similarities for use in identifying near-
30 neighbor objects.